DOCUMENT RESUME

ED 163 927 IR 006 469

AUTHOR Bellanti, Robert; Widdifield, Cecil
TITLE Interlibrary Lending Cost Analysis: UCLA Biomedical Library. Preliminary Report.
PUB DATE Mar 78
NOTE 35p.; Paper presented at the Annual Meeting of the Medical Library Association (Chicago, Illinois, March 1978); Not available in hard copy due to marginal legibility of appendices

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Cost Effectiveness; Data Sheets; Flow Charts; *Interlibrary Loans; Libraries; *Performance Criteria; Productivity; Staff Utilization; Tables (Data); *Task Analysis
IDENTIFIERS *UCLA Biomedical Library

ABSTRACT

The Interlibrary Loan (ILL) Section of the UCLA Biomedical Library was studied in an attempt to develop a methodology for analyzing interlibrary loan associated costs that would be generalizable to other libraries. Other objectives included developing standards of performance to monitor staff productivity and correcting imbalances in the flow of requests. To these ends, a full task analysis was performed of all functions carried out in the section. Thirty-one activities, comprised of 87 tasks, were identified. For each task, sample size, performance standard, and percent of task application to each activity were determined; for each activity, the additional factors of level of staff and activity cost per request were assigned. The activities were grouped into five functional areas: (1) receiving, (2) filling a book request, (3) filling a journal request, (4) location/referral service, and (5) administration and support. A total ILL transaction cost of $1.80 resulted from adding cumulative functional labor costs and nonlabor costs. However, certain qualifications should be made: a weighted average concept was used; only direct and on-going costs were considered; the monthly volume of requests used was averaged; the time period of the study and the organization of the section affected the findings. In light of these conditions and new changes in the library, a future study is planned. An appendix of flow charts and data tables is provided. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

PRELIMINARY REPORT

ED163927

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Interlibrary Lending Cost Analysis

UCLA Biomedical Library

Robert Bellanti, Cecil Widdifield

I. The Interlibrary Lending Section

II. Background of Study and Objectives

III. Methodology and Results

IV. Comments on Interpretation

V. Appendix

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Robert Bellanti

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

IR000469

Note: The introduction to the final version of this study will briefly describe the PSRMLS Interlibrary Lending Network and will include the formulas for weighting as well as some additional charts showing relationships between weighted factors and flow charts.

In FY 1977/78 the ILL Section will take over billing procedures on a one-year trial basis and plans to carry out a cost analysis of billing as a factor in overall costs of ILLs.

I. The Interlibrary Lending Section

The Interlibrary Loan Section of the UCLA Biomedical Library processes four categories of requests. The largest volume of requests is processed under the auspices of the Pacific Southwest Regional Medical Library Service (PSRMLS). The next major category are requests received through the University of California intercampus network. This includes all the libraries in the UC system. Requests received at UCLA from other medical libraries in the UC system are serviced through this subsidy rather than through PSRMLS.

Requests to be billed at the established UCLA rates for photocopies are the third category handled by the ILL Section. The majority of these requests are from libraries in Region XI which have exceeded the quota of free loans available through PSRMLS.

The final and smallest category of requests are those received through the Southern California Interlibrary Loan Network (SCILL). This network is comprised of libraries of all types within Los Angeles County. UCLA serves as a back-up resource for SCILL.

The total volume the ILL Section handled in 1975/76 was:

Requests received through PSRMLS:	48251
Requests received through the UC Intercampus network:	5656
Requests to be billed:	5270
Requests received through SCILL:	424
TOTAL	59601

In recent months the overall fill rate for ILL requests has been around 70%. Requests for photocopies are filled at a rate closer to 75% whereas requests for non-serial items have a fill rate of around 50%. There are a variety of reasons for the low fill rate for non-serial items. One of the primary reasons is that requests received at UCLA through PSRMLS have already gone through a filtering process within Region XI. These are requests for items generally unavailable at the regional resource libraries. Many of them are requests for esoteric or ephemeral items and others are for subjects not in scope for the Biomedical Library's collection. Frequently this material is not even available at NLM.

Throughput for requests has been a volatile issue within the past two years. In the past year the ILL Section has generally been able to meet its commitment to NLM for 85% turnaround within four days for filled requests. A 25% increase in the already very heavy use of the library by its campus constituents as well as a lack of sufficient staff in the Circulation Division have made this objective a difficult one to fulfill adequately at all times.

These statistics are based on figures which are computer generated monthly for requests received through PSRMLS. Statistics for the other categories of requests are not compiled with such sophistication or detail. There is no reason to believe, however, that the requests received through non-PSRMLS sources are processed with any significant variations from those received through PSRMLS.

The ILL staff consists of 7 FTE broken down as follows:

Associate Librarian	1 FTE
Library Assistant IV	1 FTE
Library Assistant II	2 FTE
Library Assistant I	1 FTE
Clerk and Assistant II (student assistants)	2 FTE
	7 FTE

Four FTE are funded through PSRMLS. The other personnel are funded through the UC intercampus exchange fund; through SCILL; and through line funds from the Biomedical Library. The labor to do the photocopying for requests received through the UC network and for requests to be billed is supplied through the UCLA Library A/V and Photographic Department.

II. Background of Study and Objectives

With the exception of requests received through SCILL, all requests are processed in a single work flow pattern. Requests are segregated by category only when photocopies are to be made or for mailing. This is to insure that the correct accounts are charged for these activities.

Costs incurred for the many tasks performed within the Section have always been a major concern primarily because of the unique structure of the Section and its pattern of funding. The contractual relationship the Section has with NLM for loans filled through PSRMLS has necessitated a fairly detailed analysis of costs associated with those requests. Cost analysis for the other categories of loans has been carried out with less precision.

The on-going discussion between NLM and the regional medical libraries about document delivery with its implication for decreased subsidies for ILL has given a new importance to the whole subject of ILL related costs. It seemed particularly appropriate to conduct a detailed cost analysis of the ILL Section at this time in order to have a thorough, up-to-date picture of the operation. Furthermore, the development of a plan for document delivery in Region XI made it necessary to collect cost information on certain ILL activities, such as referrals, with a degree of precision not previously attempted.

Since the work of the Section is essentially processed in a unified manner, it was decided to do the cost study analyzing all the categories of loans instead of only those received through PSRMLS. It was recognized at the outset that costs obtained for certain activities, such as referrals, would only be applicable to PSRMLS loans. However, most of the loans go through the same routines as they are being processed; thus the costs obtained for the majority of the procedures would hold true for any category of request.

The major objective of the study, then, was to analyze the costs involved in carrying out the various tasks of the Section. From this a transaction cost per request could be ascertained.

Two other objectives of secondary importance were also established at the outset of the study. The first of these objectives was to develop standards of performance by which we could monitor staff productivity. The high turnover of part time student personnel in the Section made this a most desirable goal. We needed to develop accurate figures regarding the level of performance we could reasonably expect of our staff, particularly the students.

The other objective was to use the cost study as a means of analyzing the work flow of the Section. By looking at the whole operation we sought to correct any inbalances in the flow of requests. Since the full staff participated in the initial stages of the study, each person had an opportunity to view their job from a slightly removed perspective and to see more clearly where their work links up with the work of others.

III. Methodology and Results

To do the study in a reasonably short period of time, we decided to conduct a full task analysis of all the functions carried out within the Section. Each staff member filled out Main Task sheets for all functions they perform. These forms (based on ones used by the UCLA Library Systems Department) were designed so that each main task could be broken down into its component sub-tasks. In most cases this second level breakdown sufficed; there were, however, some activities which required a finer detail. In these instances it was necessary to proceed to a third level subset of task analysis.

In order to have a better representation of the relationship of all the jobs performed within the Section, a chart was put together showing all the tasks delineated on the Main Task sheets. This was not intended to be a flow chart depicting dynamic relationships. It was useful in that a composite view of the data contained on the Task Analysis forms was readily available to us. This graphic overall view of the Section was more comprehensible to the staff than the raw data scattered throughout the numerous Task Analysis sheets.

After this chart was drawn up, all the task analysis sheets were carefully reviewed so that any discrepancies or omissions could be corrected at the very beginning. Once the task analysis sheets were reviewed and verified for accuracy and completeness, it was necessary to carry out the activities listed under timed conditions.

For this purpose, a tally sheet was designed so that the time could be recorded for each sub-task (or third level subset) with a minimum of effort. At this stage we had to carefully stress that we wanted people to do their jobs at their normal pace and to allow for normal interruptions in their work. These tally sheets were collected daily and those representing the same tasks were grouped together. The number of requests handled and the time involved were calculated daily so that the job would not be too massive at the end of the data gathering stage. For most tasks, data was recorded for the period of one week. Since the ILL Section has a high monthly volume of requests (approximately 5000 per month), we felt that a one week sample would be sufficient in most cases. A longer sampling period was required for some task data. Data was collected for a second week for those tasks which had a large degree of variation in sampling with respect to the number of requests handled or the processing time. In no case did any sampling period exceed two weeks.

Thirty-one activities, comprised of a larger number of tasks, were finally identified. The basic concept from which all cost figures was derived is that of the weighted average. This means that costs were calculated only for that percentage of requests which goes through a given routine. Since a large number of tasks are not performed for all requests it did not seem appropriate in every case to calculate cost figures on the assumption that 100% of all requests goes through every processing routine.

For the 87 tasks, the following factors were identified:

1. Sample Size

   This is the number of times a task was sampled in the two week period.

2. Performance Standard

   This figure was calculated from the number of requests involved in all samples taken and the total time needed to do the work.

3. Per Cent of Task Application to Each Activity

   This number represents the percentage of times that each task is done for a particular activity. For example, under the activity "Book Call Numbers" the task "Check Public Catalog" has a 100% rate of application. This means that all requests for books (i.e. 100%) are checked against the public catalog. The task "Check Other Files," however, has only a 15% rate of application. This means that only 15% of all requests for books are checked against other files (such as the in process file).

For each of the thirty-one activities two other factors were identified:

1. Level of Staff

   This represents the level of staff doing the work. In some cases different levels of staff are involved; the per cent of time that each level is involved was included accordingly.

2. Activity Cost/Request

   This is the cost of doing each activity. Thus it costs $0.083 to page a journal and $0.193 to carry out our NOS procedures.

For a broader analysis, these activities were then grouped into five functional areas:

1. Receiving
2. Filling a Book Request
3. Filling a Journal Request
4. Location/Referral Service
5. Administration and Support

The derivation of the component unit costs was based on the weighted average concept. For example, under the Location/Referral Service, "NIL Book Locations" were weighted at 20%. This is because only 20% of all requests handled in the Location/Referral function are NIL books (i.e. books not owned). Similarly, unfilled journal locations represent 68% of requests handled in this function and referrals comprise 34% of requests processed within this functional area. Under Administration and Support, "Keypunching" is weighted at 120% because the keypunching is done not only for UCLA PSRMLS statistics but also for the UC San Francisco PSRMLS statistics.

A sixth factor, slippage, was added in at this stage. This is an estimate of the amount of nonproductive time accounted for each day for each staff member. We felt it would be unrealistic not to include this factor since no real work day goes by without some nonproductive time. Time for such things as coffee breaks, waiting for the staff elevator and moving around the library are included in this figure.

Cumulative functional labor costs were calculated next. These costs are based on the sum of the costs of the various functions. The weighted averages used in this sequence were based on information available to us from our computer generated PSRMLS statistics (some were algebraically inferred rather than derived directly); from our sample data; and from staff estimates. For example, the labor cost of a filled request is derived from the Section's statistics which indicate that of all filled requests, 15% are filled with the loan of a book and 85% are filled with photocopies.

Nonlabor costs were obtained from records available to us from the PSRMLS Administration and the Biomedical Library's Administrative Office. These figures were costed out at 5000 requests/month, giving a total nonlabor cost/request of $0.70. This, added to the average transaction labor cost, gave the total ILL transaction cost of $1.80. However, as noted in part IV of this report, there are certain other costs as yet unanalyzed which should be added in for the full cost. This figure represents only the costs accrued in processing by the ILL Section.

IV. Comments on Interpretation

In this study we attempted to develop a methodology for analyzing interlibrary loan associated costs. We sought to keep our approach general enough to have applicability in other libraries. We particularly wanted to develop an approach which Region XI resource libraries might find useful in calculating their own costs so that there would be a common basis from which to arrive at a uniform ILL charge.

However, the pattern of the work flow in the Section made it desirable for us to analyze the total volume of requests not just that portion associated with any single funding entity such as NLM. Thus we had to balance our wish to create a general framework for analysis against the reality of our particular manner of organization. However, although our ILL Section is probably more complex than most (thus requiring greater complexity in analysis) we believe that our overall approach is nevertheless applicable to ILL operations in other libraries.

When interpreting the results of this analysis, certain qualifications must be kept in mind. The first relates to the weighted average concept mentioned in the previous section. The costs derived

for each activity are based only on whatever percentage of requests goes through a given routine. This average transaction cost cannot be taken as a representative cost of any single category of loan handled by the Section nor, as noted before, is it altogether complete. It is a composite figure based on many different activities, tasks and the requirements of the various funding agencies.

The second qualification is that only direct and on-going costs within the ILL Section were considered. Costs which are incurred outside of the Section were not considered. For example, labor costs for returned items reshelved by the Biomedical Library's Circulation Division, purchase of added copies for ILL of books in great demand, and the considerable amount of work the Circulation Division does in dealing with ILL overdue and lost books have not been factored into the figures. Such items must be included in the final analysis to gain a complete picture of the costs of interlibrary loans. (It should be noted that one very large outside cost on PSRMLS loans, the University's overhead or indirect charge, is also omitted since it has no direct bearing on the ILL operation.)

A third qualification is the volume of requests used to determine task unit costs. We chose a monthly volume of 5,000 requests since this figure most closely corresponds to what our real average monthly load has been within the past two years. Obviously all the cost figures obtained are subject to variation if the monthly volume of requests alters considerably in a higher or a lower direction. We feel that the figures which we have derived would not alter significantly if our volume drops as low as 4,000 requests or goes as high as 6,000 requests received per month.

Another point to keep in mind is that this analysis is representative of a particular time period and manner of organization. Any major changes in the operation will obviously affect the figures we have derived. The assumption of the full billing function by the Biomedical Library beginning in July and the implementation of the CLSI automated circulation system, also in July, are two major developments which will affect our figures. When the Library has had some experience with these new routines we plan to consider the effect of the changes on our ILL costs.

V. Appendix

A. PSRMLS Labor Cost Analysis

B. Task Analysis

C. Activities Charts

PSC'LS LABOR COST ANALYSIS

ACTIVITY/TASK	SAMPLE SIZE	PERFORMANCE STANDARD	STAFF LEVEL	% TASK APPLICATION TO EACH ACTIVITY	ACTIVITY COST/REQ
RECEIVING			LAII-2		$0.045
COLLECT MATERIALS	5	1099 REQ/HOUR		100%	
GET MAIL READY	10	116 REQ/HOUR		100%	
BOOK CALL NUMBERS			LAII-5		$0.150
ALPHABETIZE BOOKS	5	296 REQ/HOUR		100%	
CHECK PUBLIC CATALOGUE	5	45 REQ/HOUR		100%	
CHECK OTHER FILES	4	59 REQ/HOUR		15%	
BOOK PAGING			ASST-II		$0.048
PUT BOOKS IN CALL NO. ORDER	5	387 REQ/HOUR		100%	
PAGE BOOKS	4	77 REQ/HOUR		100%	
CHARGE OUT VOLUMES			LAII-2		$0.197
ORGANIZE MATERIALS TO CHARGE OUT	3	352 REQ/HOUR		100%	
CHARGE OUT BOOKS	4	28 REQ/HOUR		100%	
PUT CHARGE CARDS IN ORDER	4	298 REQ/HOUR		100%	
MAIL TABLE ACTIVITY			LAII-2		$0.126
PROCESS FOR PKGI MAIL	4	43 REQ/HOUR		15%	
PROCESS FOR UPS	3	19 REQ/HOUR		5%	
PROCESS FOR MESSENGERS	3	46 REQ/HOUR		10%	
PROCESS FOR PKGD MAIL	3	38 REQ/HOUR		70%	
JOURNAL PAGING			60% ASST-II 20% CLERK 20% LAI-3		$0.093
INTERFILE JOURNALS	5	568 REQ/HOUR		100%	
PAGE NEW JOURNALS	8	95 REQ/HOUR		80%	
PAGE OLD JOURNALS	3	69 REQ/HOUR		20%	
PAGE INBOUND JOURNALS	6	51 REQ/HOUR		10%	
PAGE SPEC. AREAS-UNIDENT. JOURNALS	5	36 REQ/HOUR		5%	
REPAGE BAD PHOTOCOPIES	1	22 REQ/HOUR		1%	
CHECK PRINTOUT	8	74 REQ/HOUR		55%	
XEROX			60% ASST-II 20% CLERK 20% LAI-3		$0.081
MAKE PHOTOCOPIES	15	42 REQ/HOUR		100%	
SEND OUT PHOTOCOPIES			60% ASST II 20% CLERK 20% LAI-3		$0.069
PRECE PHOTOCOPIES	19	94 REQ/HOUR		100%	
SORT PHOTOCOPIES FOR MAILING	8	495 REQ/HOUR		100%	
MAIL OUT PHOTOCOPIES	14	130 REQ/HOUR		100%	
BOOK RETURN			LAI-3		$0.029
RETURN BOOKS TO CIRCULATION	4	149 REQ/HOUR		100%	
JOURNAL NOS			LAIV-3		$0.324
SORT NOS-NIL JOURNALS	1	86 REQ/HOUR		100%	
CHECK PRINT-OUT NOS-NUL JOURNALS	5	85 REQ/HOUR		50%	

Appendix A-1

ACTIVITY/TASK	SAMPLE SIZE	PERFORMANCE STANDARD	STAFF LEVEL	% TASK APPLICATION TO EACH ACTIVITY	ACTIVITY COST/REQ
SCRAGE (2ND) NOS JOURNALS	3	54 REQ/HOUR		75%	
CHECK CIRCFILE NOS JOURNALS	1	52 REQ/HOUR		50%	
SCRAGE (3RD) NOS JOURNALS	2	60 REQ/HOUR		50%	
PAGE SPECIAL AREAS	1	16 REQ/HOUR		2%	
BOOK NOS			LAII-2		$0.193
SORT NOS BOOKS	2	725 REQ/HOUR		100%	
SCRAGE (2ND) NOS JOURNALS	2	46 REQ/HOUR		100%	
CHECK CIRCFILE NOS BOOKS	4	45 REQ/HOUR		45%	
SCRAGE(3RD) NOS BOOKS	2	55 REQ/HOUR		45%	
FILLED JOURN PROBS.			LAIV-3		$0.502
TRACK DOWN PROBLEM JOURNALS-FILLED	2	13 REQ/HOUR		100%	
SPECIAL OVER QUOTA			LAII-2		$0.390
PROCESS OVER QUOTA REQUESTS	1	12 REQ/HOUR		100%	
NIL BOOK LOCATIONS			LAII-5		$0.137
CHECK PSUCMX FOR NIL BOOKS	5	54 REQ/HOUR		100%	
PREPARE TO MAIL LOCATIONS-NIL BOOKS	3	93 REQ/HOUR		65%	
NOS BOOK LOCATIONS			LAII-5		$0.253
ALPHABETIZE NOS BOOKS	1	88 REQ/HOUR		100%	
CHECK PSUCMX FOR NOS BOOKS	4	33 REQ/HOUR		100%	
PREPARE TO MAIL LOCATIONS-NOS BOOKS	2	116 REQ/HOUR		65%	
UNFILLED BOOK PROBS			ASSOC. LIB		$0.553
CHECK CATLINE PROBLEM BOOKS	6	62 REQ/HOUR		60%	
CHECK OTHER BIBLIO TOOLS BOOKS	8	9 REQ/HOUR		40%	
CHECK PRE-65 IMPRINTS- PROB BOOKS	3	12 REQ/HOUR		15%	
TYPE NOTICE FOR PROBLEM BOOKS	5	50 REQ/HOUR		50%	
UNFILLED JOURN LOCS			LAII-5		$0.221
SORT FOR JOURNAL LOCATIONS	5	261 REQ/HOUR		100%	
CHECK SERLINE & OTHER POIS	5	43 REQ/HOUR		100%	
ATTACH PRL 74-26A JOURNALS	4	102 REQ/HOUR		75%	
SORT & MAIL JOURNAL-BOOK NOTICES	5	227 REQ/HOUR		150%	
UNFILLED JOURN PROBS			LAIV-3		$0.533
TRACK DOWN PROBLEM JOURNALS-NILS	2	19 REQ/HOUR		100%	
TYPE NOTES-MAIL PROBLEM NOTICES	3	37 REQ/HOUR		100%	
TWX STATUS			CLERK		$0.080
CUT TWX TAPE-STATUS REPORTS	7	94 REQ/HOUR		100%	
SEND TWX TAPE STATUS REPORTS	7	90 REQ/HOUR		100%	
REFERRALS			LAII-5		$0.289
PREPARE REGIONAL REFERRALS	2	112 REQ/HOUR		25%	
PREPARE NLM REFERRALS	5	360 REQ/HOUR		75%	
INPUT ON DOCLINE	5	24 REQ/HOUR		75%	
PREPARE NOTICE OF REFERRAL	5	86 REQ/HOUR		75%	
TALLY REFERRAL STATISTICS	2	116 REQ/HOUR		100%	
CLEAR REFERRAL FILE MONTHLY	1	2059 REQ/HOUR		100%	

PSRMLS LABOR COST ANALYSIS

ACTIVITY/TASK	SAMPLE SIZE	PERFORMANCE STANDARD	STAFF LEVEL	% TASK APPLICATION TO EACH ACTIVITY	ACTIVITY COST/REQ
TWX REFERRALS			CLERK		$0.219
CUT TWX TAPE REFERRALS	6	26 REQ/HOUR		100%	
SEND TWX TAPE REFERRALS	6	41 REQ/HOUR		100%	
KEYPUNCHING			CLERK		$0.015
GROUP & SORT FOR KEYPUNCHING	4	404 REQ/HOUR		70%	
KEYPUNCH FROM MLA FORMS	5	800 REQ/HOUR		70%	
KEYPUNCH FROM UCLA CODE SHEETS	1	733 REQ/HOUR		30%	
KEYPUNCH FROM USC CODE SHEETS	1	719 REQ/HOUR		0%	
STAMP REQUESTS CODED & FILE BOOKS	5	2827 REQ/HOUR		70%	
LOOK UP MISSING CODES	4	110 REQ/HOUR		5%	
TYPE FORM LETTERS	3	32 REQ/HOUR		2%	
CODING			50% LAII-5 50% LAIV-3		$0.043
CODE NILS AND REFERRALS	3	124 REQ/HOUR		100%	
PML FILING			LAI-3		$0.006
SORT & FILE PML FILLED PHOTO REQS	2	706 REQ/HOUR		100%	
OTHER FILING			LAI-3		$0.010
FILE & TALLY	2	427 REQ/HOUR		100%	
LOG BIOMED REFS			LAII-5		$0.078
LOG IN BIOMED REFERRALS	5	69 REQ/HOUR		100%	
SUPPORT TWXING			CLERK		$0.244
CUT TWX TAPE-BIOMED REQS	4	32 REQ/HOUR		75%	
CUT TWX TAPE MESSAGES	4	10 REQ/HOUR		25%	
SEND TWX TAPE-BIOMED REQS	5	58 REQ/HOUR		75%	
SEND TWX TAPE MESSAGES	4	25 REQ/HOUR		25%	
CLEAR MAIN FILE			LAII-2		$0.001
CLEAR FILES MONTHLY	1	6064 REQ/HOUR		100%	
MAINTAIN PSUCHM			CLERK		$0.145
STAMP & SORT UCLA CARDS	1	470 CARDS/HOUR		100%	
ALPHA & SORT RESOURCE CARDS	1	211 CARDS/HOUR		100%	
FILE UCLA CARDS	3	79 CARDS/HOUR		100%	
FILE RESOURCE CARDS	2	116 CARDS/HOUR		100%	
ENTER IN LOCATION REGISTER	1	128 CARDS/HOUR		100%	
SCILL			LAI-3		$0.302
PROCESS SCILL REQUESTS	4	14 REQ/HOUR		100%	
SPECIAL STATISTICS			LAI-3		$0.007
COMPILE CAL TECH/USC STATISTICS	1	1145 REQ/HOUR		100%	
COMPILE NON PML, NON UC CALIF STATS	1	1145 REQ/HOUR		100%	

Appendix A-3

FUNCTIONAL LABOR COSTS
****

FUNCTION	UNIT COST	COMPONENTS	COMPONENT UNIT COST	COMPONENT WEIGHT BY FUNCTION
RECEIVING	$0.04	RECEIVING	$0.04	100%
FILLING A BOOK REQUEST	$0.65	BOOK CALL NUMBERS	$0.15	100%
		BOOK PAGING	$0.05	100%
		CHARGE OUT VOULUMES	$0.20	100%
		MAIL TABLE ACTIVITY	$0.13	100%
		BOOK RETURN	$0.03	100%
		BOOK NOS	$0.19	50%
FILLING A JOURNAL REQUEST	$0.42	JOURNAL PAGING	$0.08	100%
		XEROX	$0.08	100%
		SEND OUT PHOTOCOPIES	$0.07	100%
		JOURNAL NOS	$0.32	50%
		FILLED JOURN PROBS	$0.50	5%
LOCATION/REFERRAL SERVICE	$0.50	NTL BOOK LOCATIONS	$0.14	20%
		NOS BOOK LOCATIONS	$0.25	12%
		UNFILLED BOOK PROBS	$0.55	20%
		UNFILLED JOURN LOCS	$0.22	68%
		UNFILLED JOURN PROBS	$0.53	5%
		TWX STATUS	$0.08	5%
		REFERRALS	$0.29	34%
		TWX REFERRALS	$0.22	5%
		PSUCMY 15 HRS/WK	$0.04	100%
ADMINISTRATION AND SUPPORT	$0.23	KEYPUNCHING	$0.01	120%
		CODING	$0.04	21%
		RML FILING	$0.01	42%
		OTHER FILING	$0.01	30%
		LOG BIOMED REFS	$0.08	2%
		SUPPORT TWXING	$0.24	1%
		CLEAR MAIN FILE	$0.00	100%
		DIVHEAD ADM 5HRS/DAY	$0.15	100%
		ASST DH ADM 1HR/DAY	$0.03	100%
		PHONE STAT. .5HR/DAY	$0.01	100%
SLIPPAGE	$0.30	DAILY 2HR/DAY/FTE	$0.30	100%

CUMULATIVE FUNCTIONAL LABOR COSTS

LABOR COST OF A FILLED BOOK REQUEST = $0.69	= THE SUM OF COSTS OF:	RECEIVING FILLING A BOOK REQUEST
LABOR COST OF A FILLED JOURNAL REQUEST = $0.47	= THE SUM OF COSTS OF:	RECEIVING FILLING A JOURNAL REQUEST
LABOR COST OF A FILLED REQUEST = $0.50	= THE SUM OF COSTS OF:	15% OF A FILLED BOOK 85% OF A FILLED JOURNAL
LABOR COST OF AN UNFILLED REQUEST = $0.29	= THE SUM OF COSTS OF:	RECEIVING 32% OF BOOK CALL NUMBERS 12% OF BOOK PAGING 12% OF BOOK NOS 68% OF JOURNAL PAGING 20% OF JOURNAL NOS RETURN TO REQUESTER ($0.05/REQ)
LABOR COST OF A REFERRAL = $0.79	= THE SUM OF COSTS OF:	AN UNFILLED REQUEST LOCATION/REFERRAL SERVICE
LABOR COST OF AN ILL REQUEST = $1.10	= THE SUM OF COSTS OF:	70% OF A FILLED REQUEST 8% OF AN UNFILLED REQUEST ADMINISTRATION AND SUPPORT SLIPPAGE 22% OF A REFERRAL (100% PSUCMM MAINTENANCE INCLUDED)

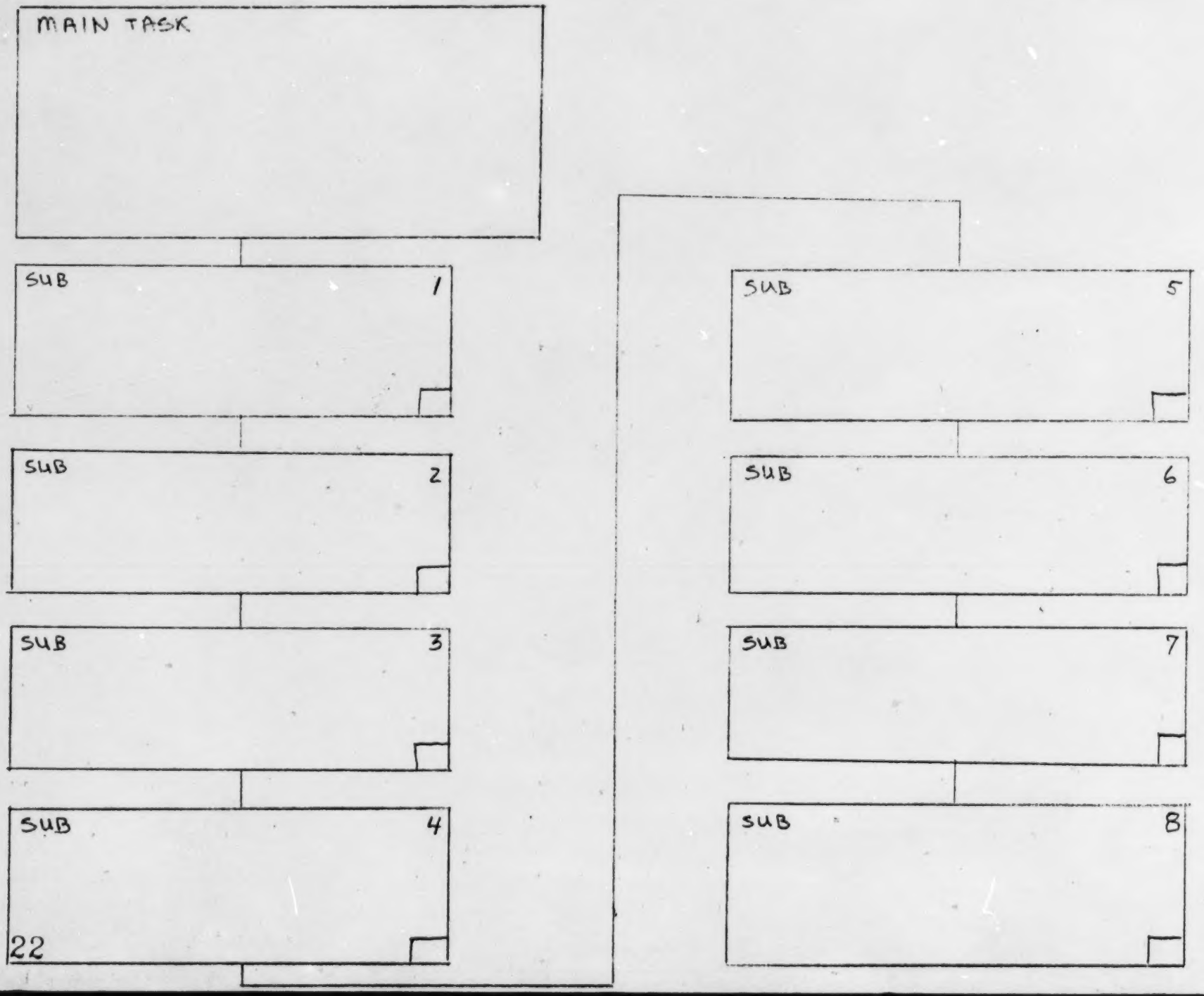
Appendix A-5

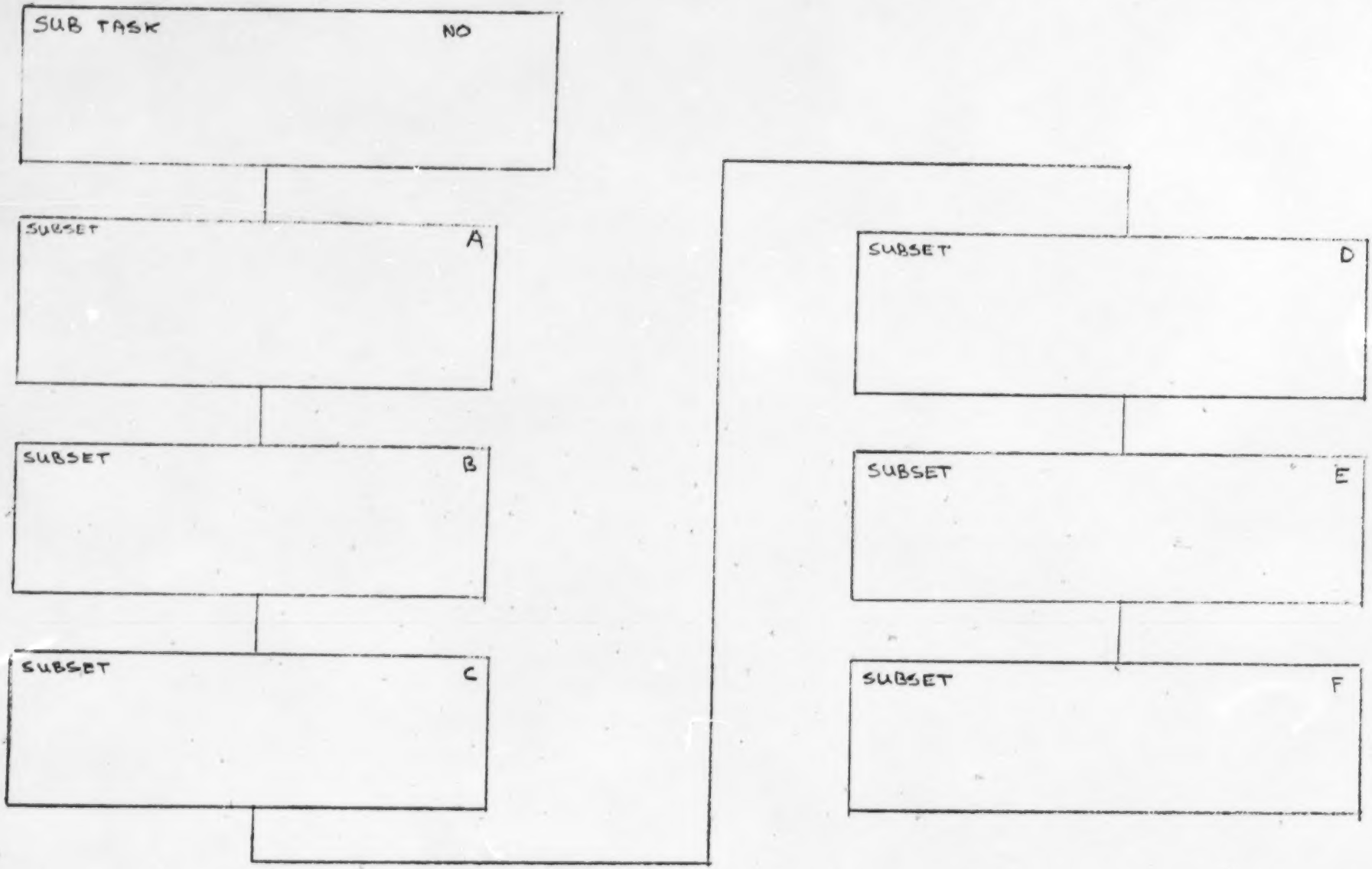
PSRMLS LABOR COST ANALYSIS

OTHER NON-LABOR COSTS	MONTHLY AVG
SUPPLY COSTS	$98.23
COMMUNICATIONS COSTS	
POSTAGE	912.00
TWX	442.25
PHONE	193.00
REPRODUCTION COSTS	
PRINTING	33.33
DECISION RENTAL	250.00
DECISION PAPER	570.00
MISC	10.00
MICROFILMING	82.00
COMPUTER RELATED COSTS	
COMPUTER TIME	46.00
KEYPUNCH RENTAL	65.00
IBM CARDS	12.50
EMPLOYEE FRINGE BENEFITS	786.41
TOTAL NON-LABOR COSTS	$3500.72

TOTAL AVERAGE MONTHLY NON-LABOR COSTS (COSTED OUT AT 5000 REQUESTS/MONTH) = $0.70 PER REQUEST
AVERAGE LABOR TRANSACTION COST (ALSO BASED ON 5000 REQUESTS/MONTH) = $1.10 PER REQUEST

TRANSACTION COST FOR AN ILL REQUEST = $1.80 PER REQUEST


MAIN TASK
SUB 1
SUB 2
SUB 3
SUB 4
SUB 5
SUB 6
SUB 7
SUB 8


SUB TASK NO
SUBSET A
SUBSET B
SUBSET C
SUBSET D
SUBSET E
SUBSET F

MAIN TASK _____

SUB TASK _____

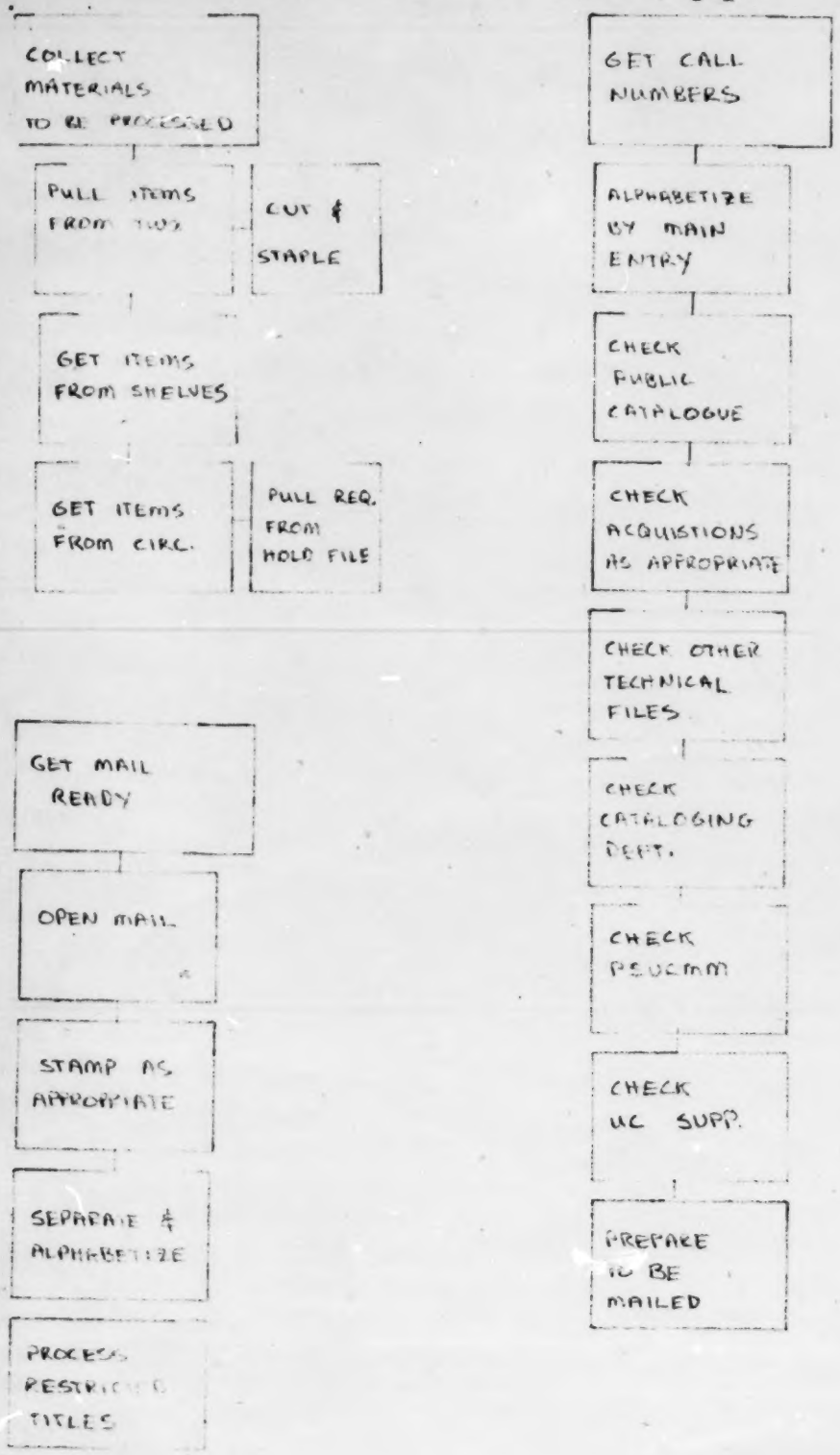
SUBSET _____

START TIME: _____ END TIME: _____

ITEMS PROCESSED

# FOUND (IF APPLICABLE)		
____		RML
____		U.C.
____		COUPON-BILL
____		OTHER EXPL: _____
		TOTAL

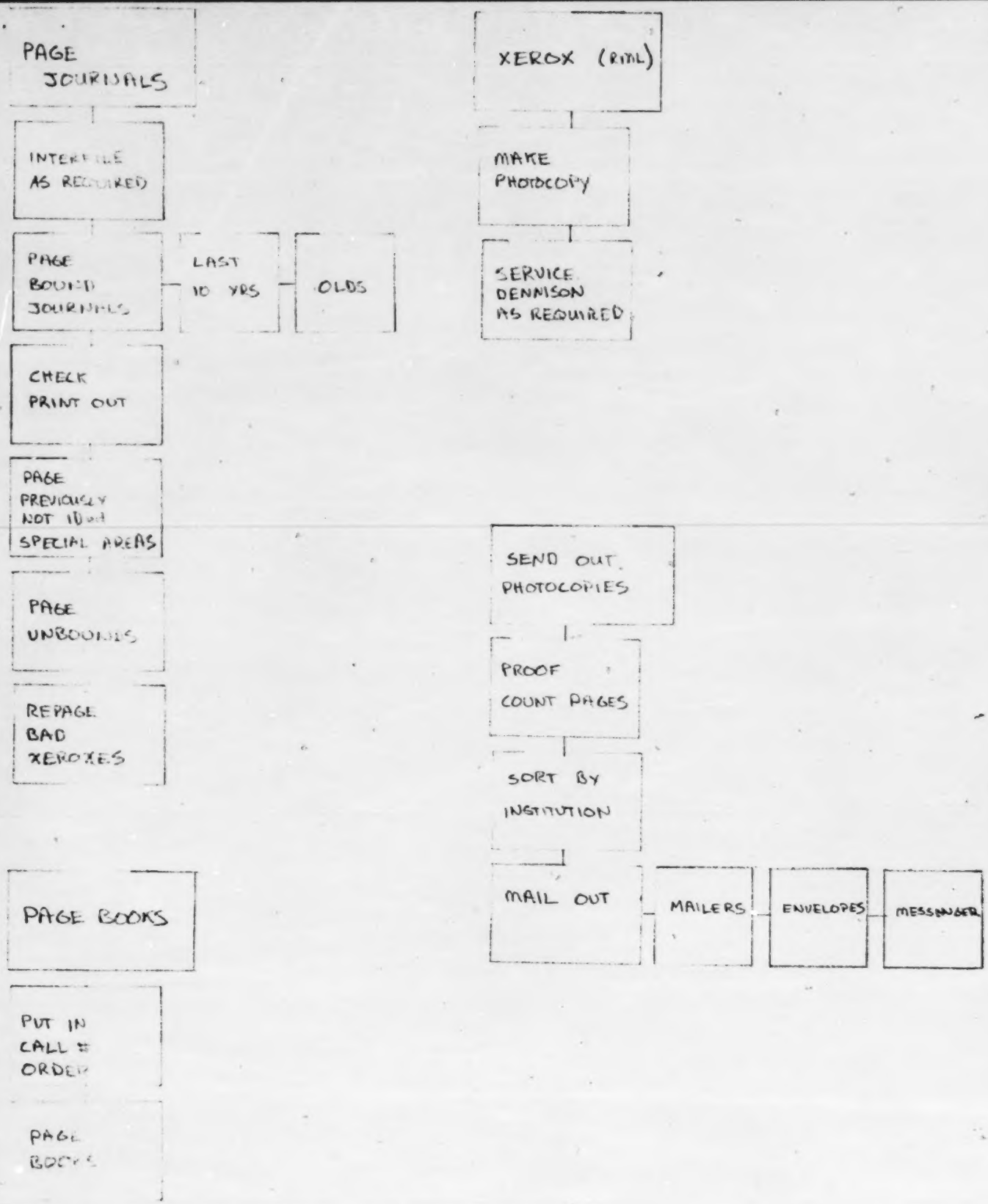
STAFF LEVEL: _____

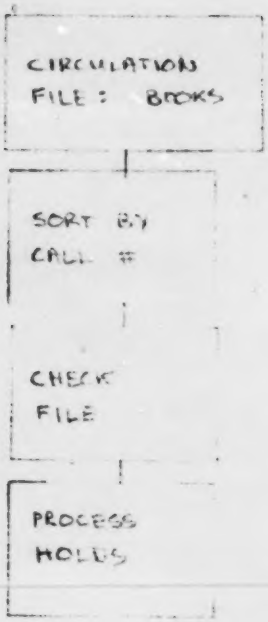


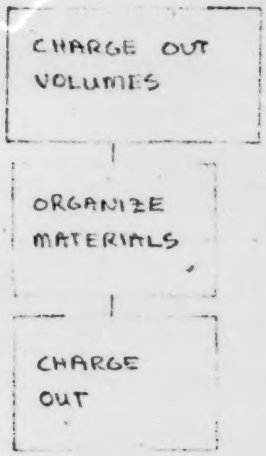
ACTIVITIES CHARTS

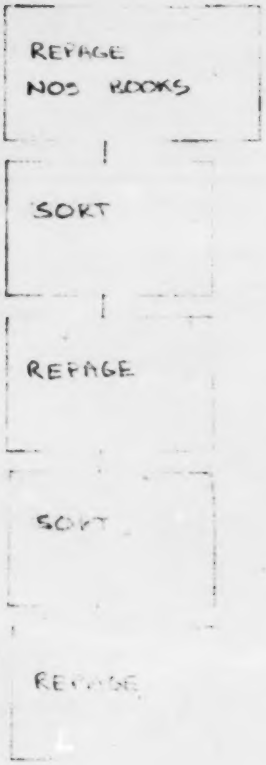
These charts were designed to display the relationship of the tasks itemized on the Main Task forms. No attempt has been made to show the inter-relationships between tasks and sub-tasks on these charts. Each task and its associated sub-tasks should be viewed independently of the others displayed.

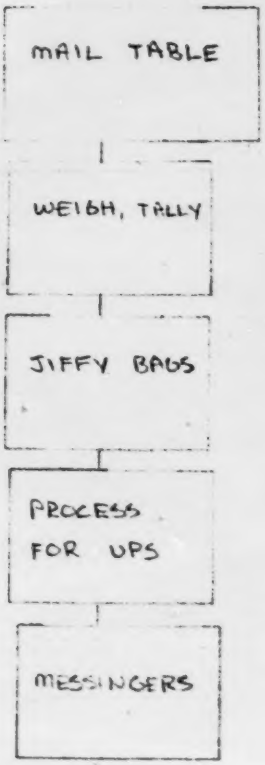
NOTE: NOS means not on shelf;
NIL means not in library, i.e. item not owned.

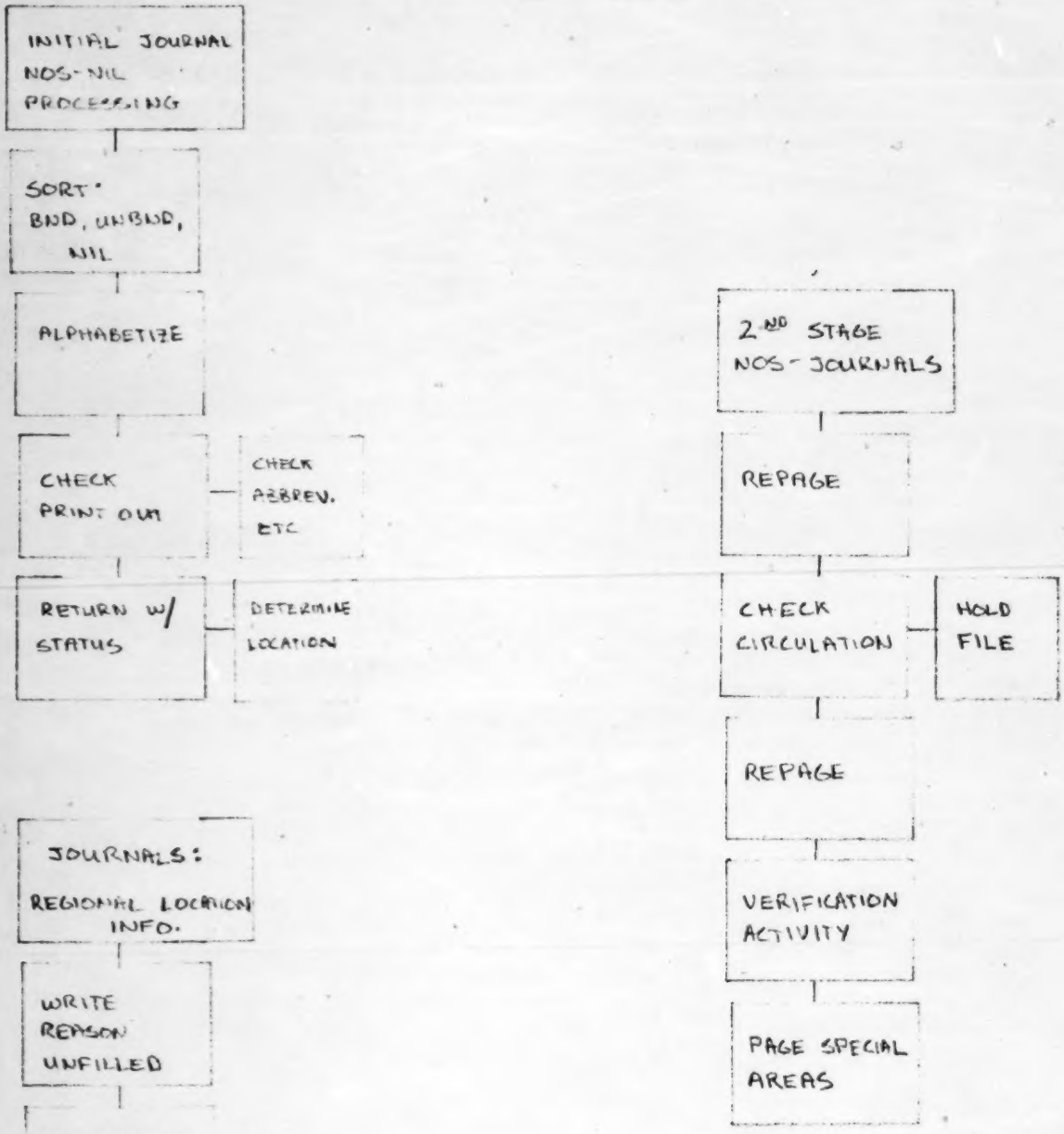

PAGE JOURNALS
INTERFILE AS REQUIRED
PAGE BOUND JOURNALS
LAST 10 YRS
OLDS
CHECK PRINT OUT
PAGE PREVIOUSLY NOT IDed SPECIAL AREAS
PAGE UNBOUNDS
REPAGE BAD XEROXES
PAGE BOOKS
PUT IN CALL # ORDER
PAGE BOOKS
XEROX (RTML)
MAKE PHOTOCOPY
SERVICE DENNISON AS REQUIRED
SEND OUT PHOTOCOPIES
PROOF COUNT PAGES
SORT BY INSTITUTION
MAIL OUT
MAILERS
ENVELOPES
MESSENGER

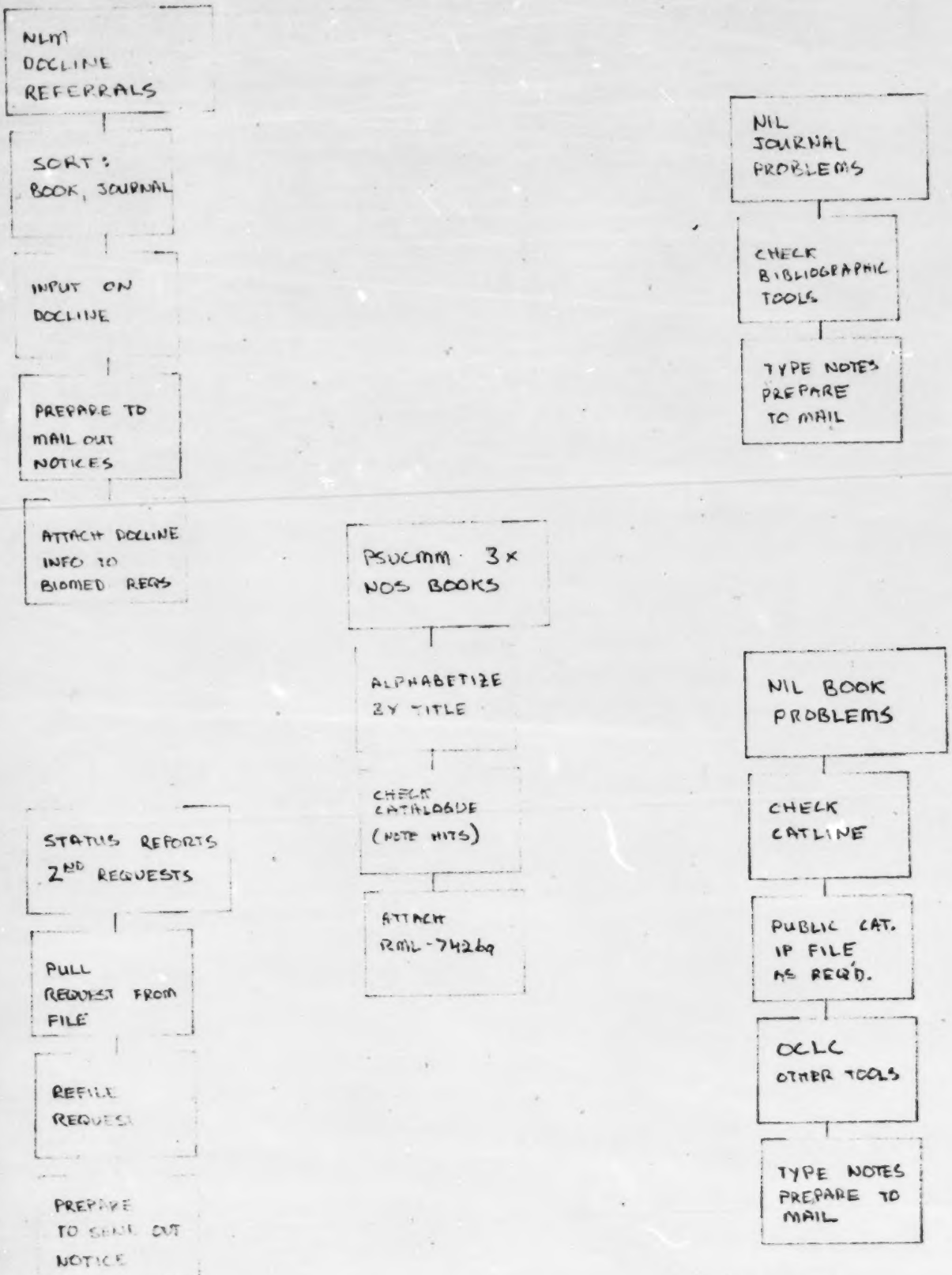

CIRCULATION
FILE : BOOKS
SORT BY
CALL #
CHECK
FILE
PROCESS
HOLDS

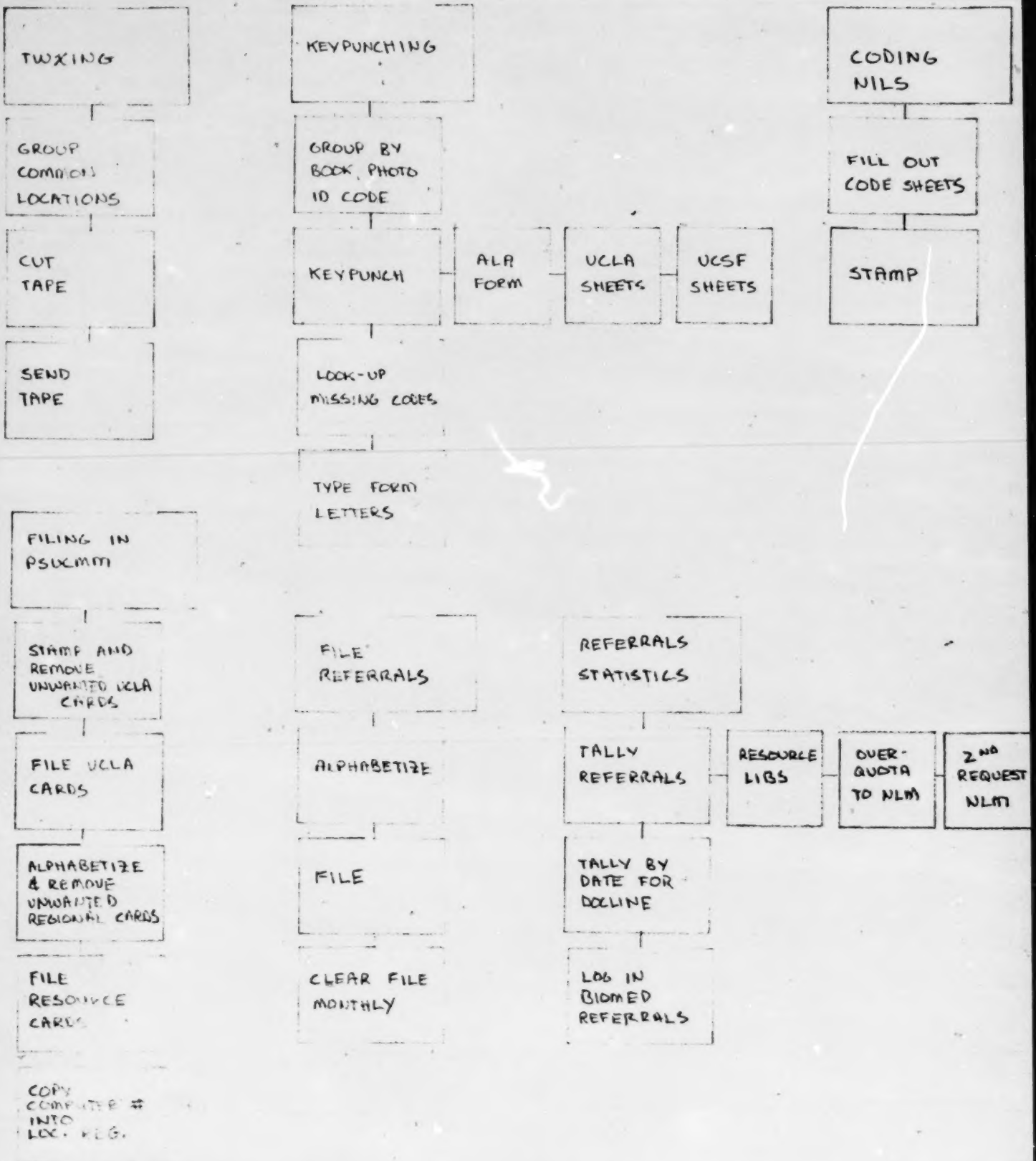

CHARGE OUT
VOLUMES
ORGANIZE
MATERIALS
CHARGE
OUT

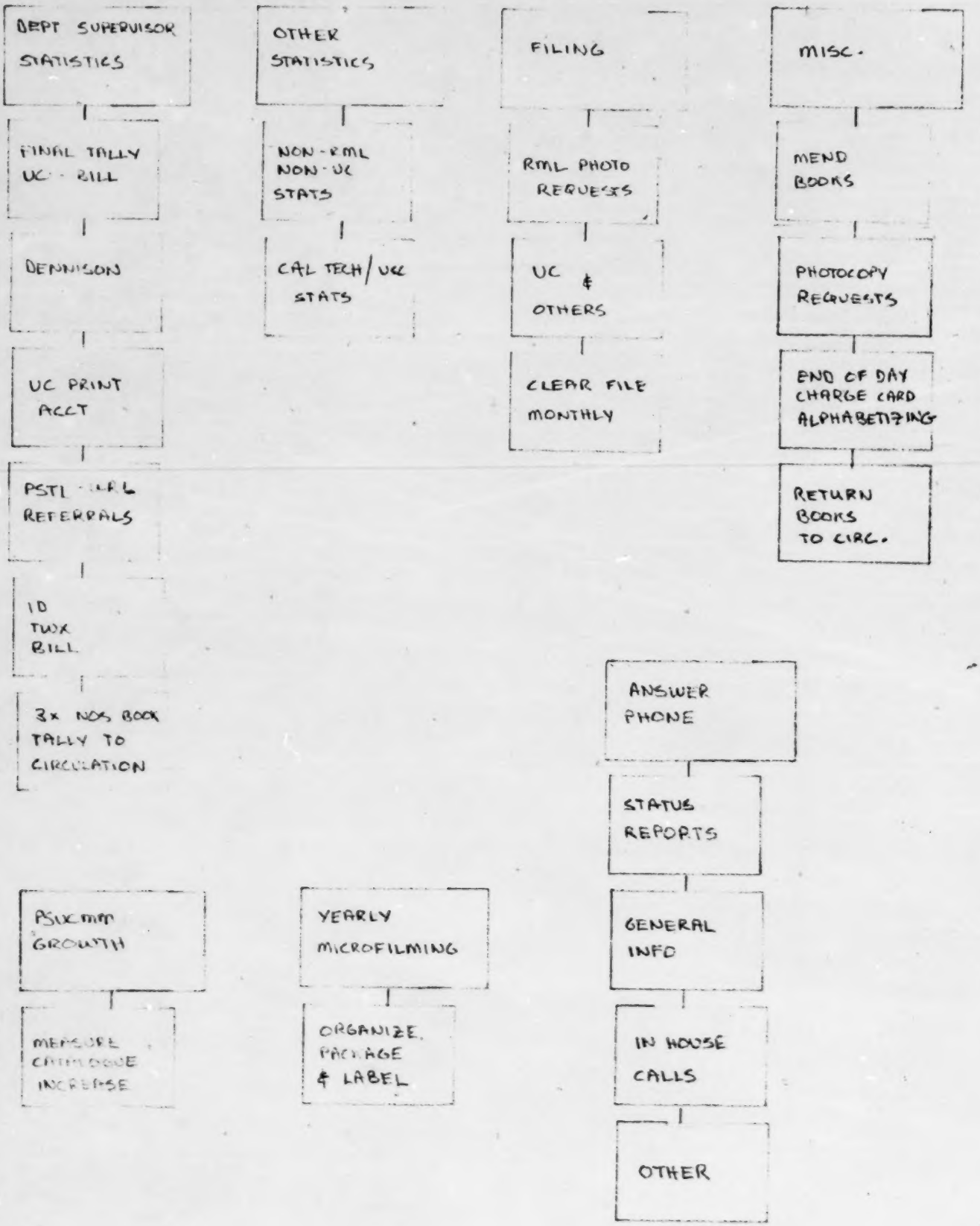

REFILE
NOS BOOKS
SORT
REFILE
SORT
REFILE

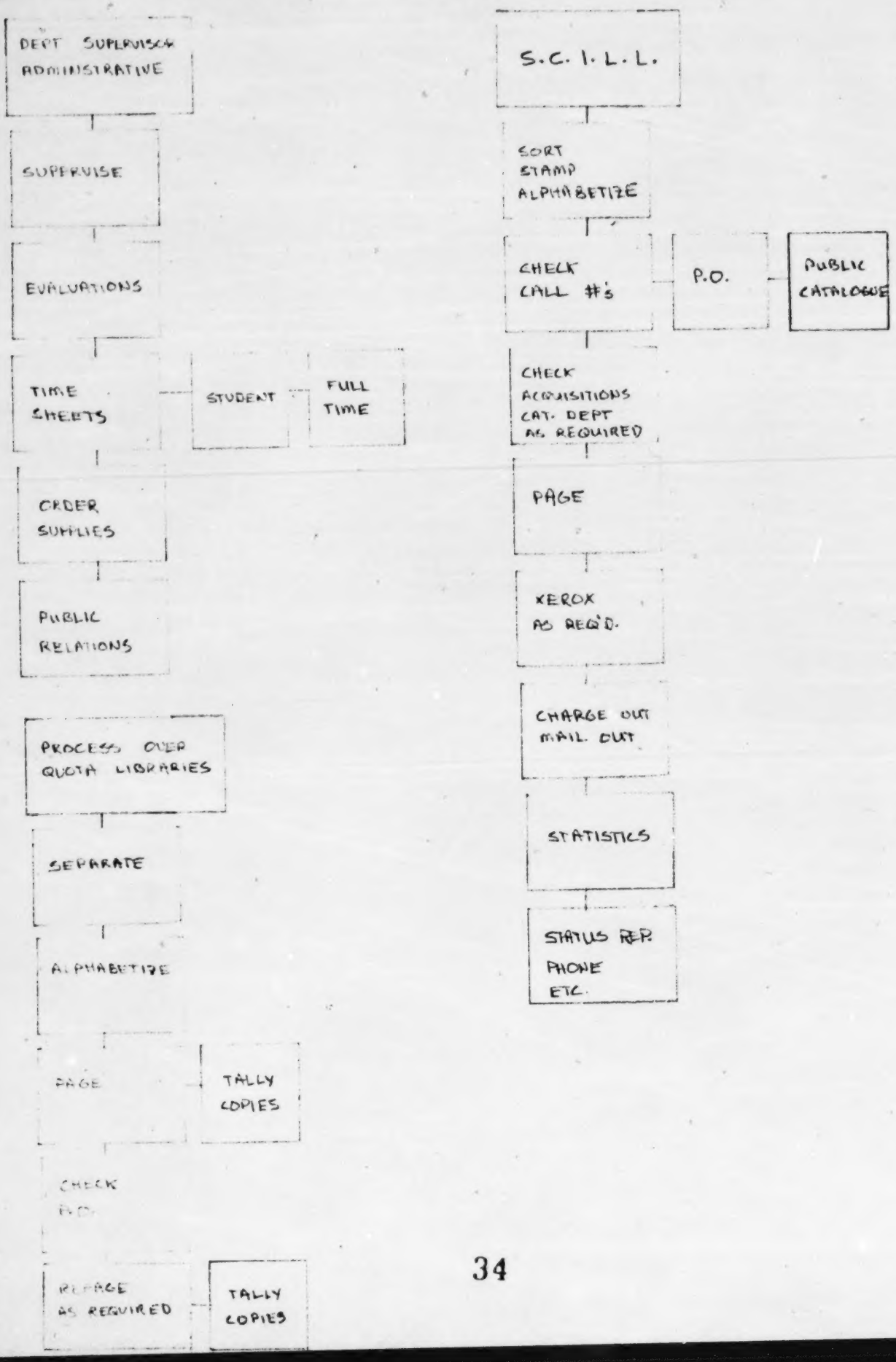

MAIL TABLE
WEIGH, TALLY
JIFFY BAGS
PROCESS
FOR UPS
MESSINGERS

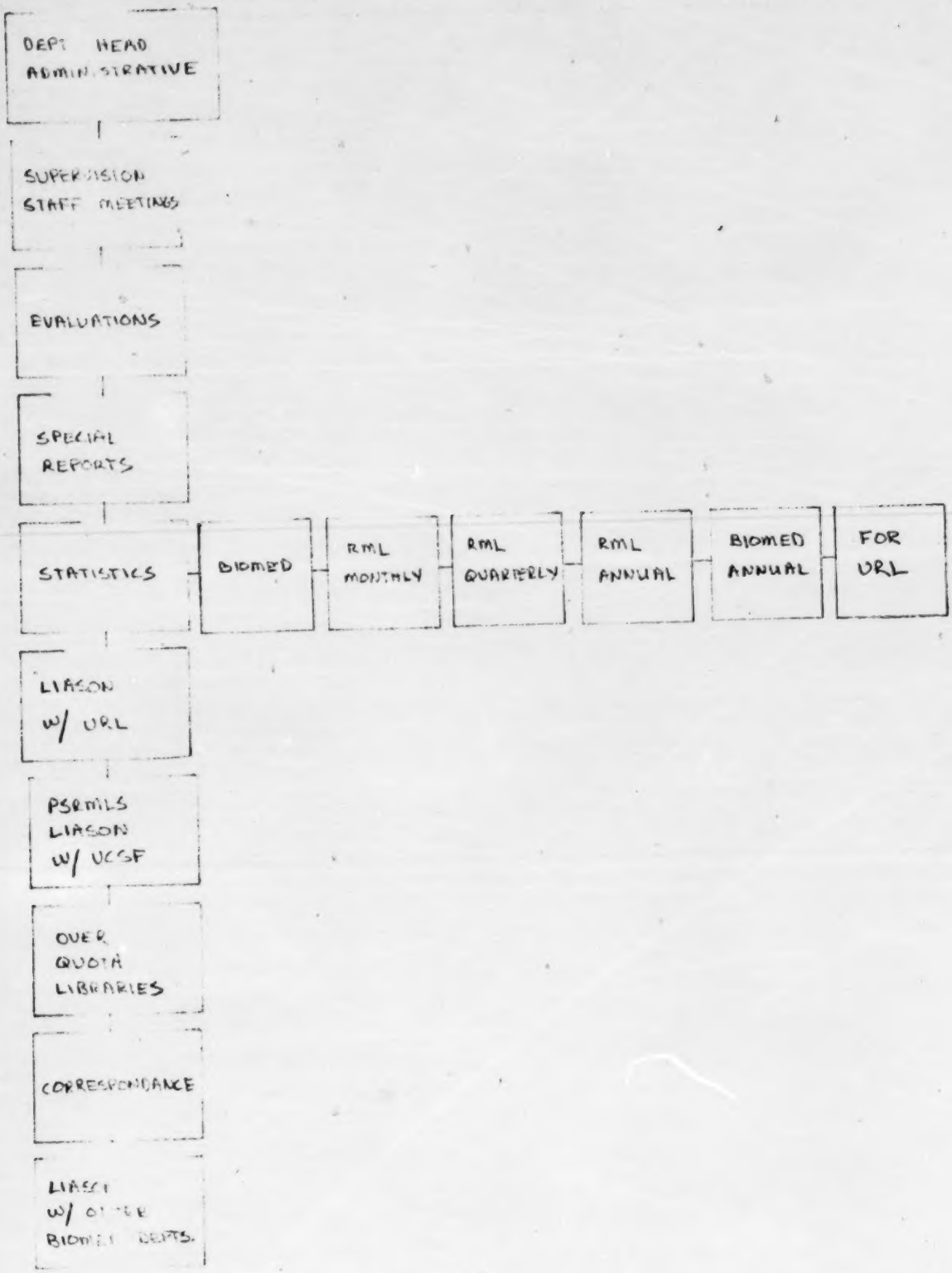

INITIAL JOURNAL NOS-NIL PROCESSING
SORT: BND, UNBND, NIL
ALPHABETIZE
CHECK PRINT OUT
CHECK ABBREV. ETC
RETURN W/ STATUS
DETERMINE LOCATION
2ND STAGE NOS-JOURNALS
REPAGE
CHECK CIRCULATION
HOLD FILE
REPAGE
VERIFICATION ACTIVITY
PAGE SPECIAL AREAS
JOURNALS: REGIONAL LOCATION INFO.
WRITE REASON UNFILLED
ALPHABETIZE
LOOK UP LOCATIONS
CHECK SERIAL LINE
CHECK INDIVID P.O's
ATTACH RAIL 7H-269
MAIL OUT
SORT: INSTITUTION
POSTAGE CLASS
STUFF ENVELOPES


NLM DOCLINE REFERRALS
SORT: BOOK, JOURNAL
INPUT ON DOCLINE
PREPARE TO MAIL OUT NOTICES
ATTACH DOCLINE INFO TO BIOMED REQS
NIL JOURNAL PROBLEMS
CHECK BIBLIOGRAPHIC TOOLS
TYPE NOTES PREPARE TO MAIL
PSUCMM 3x NOS BOOKS
ALPHABETIZE BY TITLE
CHECK CATALOGUE (NOTE HITS)
ATTACH RML-74269
NIL BOOK PROBLEMS
CHECK CATLINE
PUBLIC CAT. IP FILE AS REQ'D.
OCLC OTHER TOOLS
TYPE NOTES PREPARE TO MAIL
STATUS REPORTS 2ND REQUESTS
PULL REQUEST FROM FILE
REFILE REQUEST
PREPARE TO SEND OUT NOTICE


TWXING
GROUP COMMON LOCATIONS
CUT TAPE
SEND TAPE
KEYPUNCHING
GROUP BY BOOK, PHOTO ID CODE
KEYPUNCH
ALA FORM
UCLA SHEETS
UCSF SHEETS
LOOK-UP MISSING CODES
TYPE FORM LETTERS
CODING NILS
FILL OUT CODE SHEETS
STAMP
FILING IN PSUCMM
STAMP AND REMOVE UNWANTED UCLA CARDS
FILE UCLA CARDS
ALPHABETIZE & REMOVE UNWANTED REGIONAL CARDS
FILE RESOURCE CARDS
COPY COMPUTER # INTO LOC. FILE.
FILE REFERRALS
ALPHABETIZE
FILE
CLEAR FILE MONTHLY
REFERRALS STATISTICS
TALLY REFERRALS
RESOURCE LIBS
OVER-QUOTA TO NLM
2ND REQUEST NLM
TALLY BY DATE FOR DECLINE
LOG IN BIOMED REFERRALS


DEPT SUPERVISOR STATISTICS
FINAL TALLY UC - BILL
DENNISON
UC PRINT ACCT
PSTL - ILL REFERRALS
ID TUX BILL
3x NOS BOOK TALLY TO CIRCULATION
OTHER STATISTICS
NON-RML NON-UC STATS
CAL TECH/UCC STATS
FILING
RML PHOTO REQUESTS
UC & OTHERS
CLEAR FILE MONTHLY
MISC.
MEND BOOKS
PHOTOCOPY REQUESTS
END OF DAY CHARGE CARD ALPHABETIZING
RETURN BOOKS TO CIRC.
ANSWER PHONE
STATUS REPORTS
GENERAL INFO
IN HOUSE CALLS
OTHER
PSUCMM GROWTH
MEASURE CATALOGUE INCREASE
YEARLY MICROFILMING
ORGANIZE, PACKAGE & LABEL


DEPT SUPERVISOR ADMINISTRATIVE
SUPERVISE
EVALUATIONS
TIME SHEETS
STUDENT
FULL TIME
ORDER SUPPLIES
PUBLIC RELATIONS
PROCESS OVER QUOTA LIBRARIES
SEPARATE
ALPHABETIZE
PAGE
TALLY COPIES
CHECK P.O.
RE-PAGE AS REQUIRED
TALLY COPIES
S.C.I.L.L.
SORT STAMP ALPHABETIZE
CHECK CALL #'s
P.O.
PUBLIC CATALOGUE
CHECK ACQUISITIONS CAT. DEPT AS REQUIRED
PAGE
XEROX AS REQ'D.
CHARGE OUT MAIL OUT
STATISTICS
STATUS REP. PHONE ETC.


DEPT HEAD ADMINISTRATIVE
SUPERVISION STAFF MEETINGS
EVALUATIONS
SPECIAL REPORTS
STATISTICS
BIOMED
RML MONTHLY
RML QUARTERLY
RML ANNUAL
BIOMED ANNUAL
FOR URL
LIASON W/ URL
PSRMLS LIASON W/ UCSF
OVER QUOTA LIBRARIES
CORRESPONDANCE
LIASON W/ OTHER BIOMED DEPTS.